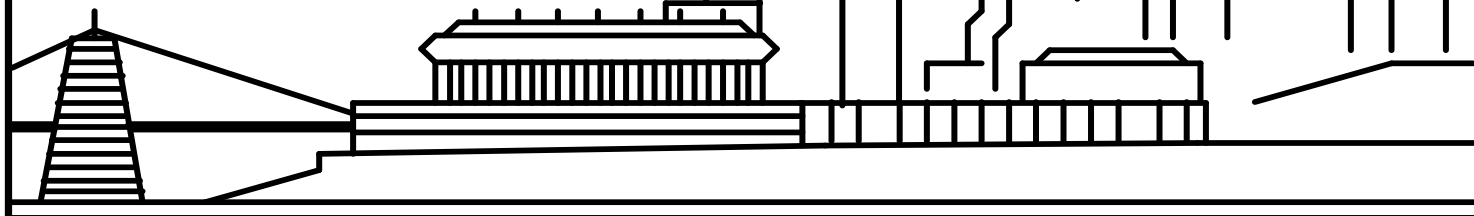




INSTITUTE OF
ELECTRICAL &
ELECTRONICS
ENGINEERS, INC.



APRIL 2000

IEEE CINCINNATI SECTION NEWSLETTER

APRIL MEETING TAKING ADVANTAGE OF PROFESSIONAL ACTIVITIES IN THE IEEE

DATE : April 27, 2000

PLACE : Hartwell Recreation Center - See map on Page 2

TIME: 6:30 to 7:00 PM (Social Time)
7:00 PM (Program)
8:30 PM (Approx. - Adjournment)

THIS IS NOT A DINNER MEETING!!!! If desired, Sorrento's (8794 Reading Road) has areas or back rooms which members may use if they wish to meet for dinner prior to the 6:30PM start of the Social Time. Suggested arrival time at Sorrento's would be by 5:25 PM. Any one wanting to be seated with the IEEE group, should tell the hostess upon arrival.

Please call the Cincinnati Section Voice Mailbox at 629-9380, by Noon, Tuesday, April 25, 2000 if you plan to attend. Please leave **your Name, IEEE Member Number and a daytime telephone number.**

ABOUT THE MEETING: The presentation, by Mr. James Burghart, will cover the professional activities which IEEE provides for its U.S. members through the Professional Activities Committee for Engineers (PACE), and the PACE network of individuals who deliver these services. These services include activities in Career Enhancement, Pre-College Education, Student Professional Awareness, Technical Policy Development and Employment Assistance. PACE also sponsors an annual Professional Development Conference whose purpose is to enhance and develop professional skills in IEEE members. These activities are all organized under IEEE-USA.

Each one of these professional activity areas, and the various ways professional activity services are delivered to IEEE members, will be described. Examples of some recent professional activities projects in the region will also be discussed.

BACKGROUND OF THE SPEAKER: James Burghart grew up in Erie, Pennsylvania and received B.S.E.E., M.S.E.E. and Ph.D. degrees from Case Institute of Technology. He held faculty positions at the Air Force Institute of Technology and the State University of New York at Buffalo before coming to Cleveland State University in Cleveland, Ohio as Professor and Department Chair. He is currently Professor in the Electrical and Computer Engineering Department. His research interests and publications are in the areas of control systems

and computer applications, with his current technical interests focused on the design of intelligent control systems. He was honored by the IEEE Cleveland Section as 1995 Engineer of the Year. He has served as Chair of the Region 2 Professional Activities Committee and Region 2 PACE Coordinator since 1997. He is a candidate for Region 2 Director-Elect in the 2000 IEEE election.

MEETING LOCATION DIRECTIONS:



From the North: Via I-75 Southbound, take Exit 10, turn right onto Galbraith Rd. Go West, past Vine St, take turnout onto Pfau Rd. to Vine (Ohio Rt. 4). Right onto Vine Southbound. Right onto Caldwell just before the Railroad bridge. Turn left onto May into the parking lot.

From the West using I-74 and Cross County: I-74 to I-275 Northbound; I-275 Northbound to Cross County (Ohio Rt. 126); Ohio 126 to I-75 Southbound to Exit 9. Turn right at the end of the ramp; Under the second Railroad bridge, turn left onto Caldwell; Under expressway bridge, turn left onto May into the parking lot.

From the South: Via I-75 N, take Exit 9; Left onto Paddock / Vine / Ohio Rt. 4. Under the Railroad bridge to traffic signal (Caldwell); Left onto Caldwell, then left onto May into the parking lot.

THIS NEWSLETTER IS AVAILABLE BY E-MAIL OR ON THE WEB

By Bob Morrison, Editor

Did you know that you can get this newsletter by e-mail? You can also see it on the Section's Web Page at <http://ieee.cincinnati.fuse.net/>. In the last month, there have been over 100 Cincinnati Section members change to e-mail subscription.

If you would like to receive a sample copy via e-mail, call me at 287-3697 or send me an e-mail at j.r.morrison@ieee.org. If you like that method, let me know & I'll switch you over. If you decide you would like to simply view it each month on the Web, let me know and a reminder e-mail will be sent to you when the new issue has been posted.

CHAIR'S MESSAGE

by Ron Harbaugh, Section Chair

The March Section meeting was a very good presentation by Dr. Richard Doviak on the subject of Doppler radar. Dr. Doviak is the leading expert on Doppler radar in the nation. His presentation covered the theory of Doppler radar and its applications in weather storm warning systems. We heard a lot about weather theory as well as Doppler theory. For those who missed the presentation, you can go the Doppler/weather web site at <http://www.nssl.noaa.gov/>.

At this moment, we are not sure the Section will have a June outing as originally planned. We do not have any plans in place yet. Our goal is to have a Kings Island outing for the families of IEEE members. We are working on the proposal to have a behind the scenes tour with discount tickets for the IEEE families into the Kings Island Amusement Park. The family outing in June is intended to replace the Golf Outing which is discontinued.

May 13, 2000 is the intended date of our next Senior Membership Workshop. Time and location are to be determined. We are inviting all Section members to come out and get your membership upgrade. We will have the information for you in the May newsletter. Anyone needing additional information may contact me at 352-2941 or contact any member of the Executive Committee listed on the last page of this newsletter.

UPCOMING SECTION MEETINGS AND TOPICS

May, 2000 - Section Meeting; Topic will be " Appliance Applications – LINUX ".

Detailed information about the Section Meetings will be included in that month's newsletter. If you are interested in attending an Executive Committee Meeting, please contact either Ron Harbaugh or Jack Beckmeyer (see last page for phone numbers).

NEW MEMBERS

The following individuals are IEEE members who are new to our Section:

Taka Ariga	Robert L. Hayes	Patrick T. Olekas
Warren Belanger	Xiaokun Li	Bartley D. Richardson
Robert K. Casto	Ka-hing Lin	Casey P. Schmit
Jason R. Ellis	Reginald D. Maisonneuve	Vijay Sundaresan
Narasimhai Gorla	Kevin W. Moeller	Peter Telek
Michel Hamelin	Alan C. Noble	

We wish to extend our welcome to all of our Section's new members!!!

ENGINEER NEEDED

Cinergy Corp. is looking for an electrical engineer interested in becoming the system protection expert servicing its Indiana electrical generating stations. Based in Plainfield, Indiana, this person will spend about a year with an assigned mentor reviewing symmetrical components, conducting short circuit and voltage studies, evaluating motor protection, examining auxiliary system coordination, and much more. With the guidance of the mentor, you will be involved in power plant system protection questions and issues to gain practical experience. In the end, this engineer will be the specialist that will establish a consistent philosophy and address any system protection needs across the generation system. Send resume to Donna Beaman at Cinergy Corp., 139 E. 4th St., Cincinnati, OH or electronically at dbeaman@Cinergy.com.

January and February in EE History

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*by Frederik Nebeker, Senior Research Historian,
IEEE History Center, Rutgers University*

Turn Up the Amps - 225 years ago - Jan. 22, 1775: Andre-Marie Ampere, born on January 22, 1775, was extremely gifted at mathematics. He became a professor of that subject at the Ecole Polytechnique, where he became interested in electricity from learning of Hans Christian Oersted's discovery in 1820 that a current-carrying wire deflected a magnetic needle. His classic text, *Theorie mathematique des phenomenes electrodynamiques* (1827), laid the foundations of electrodynamics. Ampere proposed, but did not build, a telegraph system that used a pair of wires and a compass needle for each letter of the alphabet. Ampere died in 1836, but his name was immortalized when it was defined as a unit of current (amperes) at the First International Electrical Congress in 1881.

Remember the Nautilus - 100 years ago - Jan. 27, 1900: Hyman Rickover was born January 27, 1900 in Makov, Russia and grew up in Chicago. He was educated at the U.S. Naval Academy and then at Columbia University, where he earned a master's degree in electrical engineering. In the 1930's, he served on several submarines, and during the war he headed the Electrical Section of the Navy's Bureau of Ships. Shortly after the war he became convinced that atomic power would revolutionize submarine warfare: not only could submarines remain submerged for days, weeks or even months, making detection difficult, but they could also travel at high speeds - keeping up with fast surface vessels while submerged (which had not been possible with battery - powered electric drives).

Rickover was also the right person for making nuclear propulsion a reality. Using every means at his disposal, including going directly to Congress for funding, he brought about the development and building of the world's first atomic-powered submarine, the Nautilus, launched 46 years ago, on January 21, 1954. In addition, Rickover was in charge of research on reactor development for the Atomic Energy Commission, and helped develop the first full-scale civilian nuclear-power plant in the United States.

Bell Labs Began Operations - 75 years ago - Jan. 1, 1925: Formed on December 27, 1924, Bell Telephone Laboratories began operations January 1, 1925, and before long became the world's leading industrial research establishment.

Its achievements include a system for synchronizing sound and motion pictures (1926), the negative feedback amplifier (1927), discovery of radio waves from outside the solar system (1933), demonstration of the wave nature of matter (Nobel Prize 1937), a digital computer using electromagnetic relays (1939), enunciation of the principles of systems engineering, invention of the transistor (Nobel Prize 1956), information theory (1948), the UNIX operating system and the languages C and C⁺⁺, and discovery of the cosmic background radiation (Nobel Prize 1978).

With the 1996 divestiture of AT&T, Bell Labs became part of Lucent Technologies, though about one quarter of its researchers formed the separate AT&T Labs Research.

British radar was born - 65 years ago - Feb. 12, 1935: It is difficult to say exactly when a new technology was born. Consider the claim of February 12, 1935 as the birth date of radar. Up to the outbreak of World War II, Britain was the world leader in radar, and on February 12, 1935, Robert Watson-Watt sent a memorandum to the Committee for the Scientific Study of Air Defense entitled "Detection of aircraft by radio methods" that stated the British developmental program. In addition, the British have a secure claim to the invention of the

cavity magnetron (by John T. Randall and Henry A. H. Boot), that made airborne radar practical. It was exactly 60 years ago, on February 21, 1940, that the cavity magnetron worked for the first time.

Intertech 2000 Conference in June

The Sixth Interamerican Conference on Engineering and Technology Education (INTERTECH 2000) will be held in Cincinnati, Ohio USA from June 14–June 16, 2000. The conference will be hosted by the University of Cincinnati. The Theme of the conference: "Engineering Education in the Americas and the New Millennium". INTERTECH offers a unique opportunity for the discussion of issues related to the needs and interests of Engineering and Technology Education in the Americas as well as the development of links with colleagues from the Americas and around the world.. It also provides, in many diverse technical and plenary sessions, a major forum for the exchange of information on research and development in all fields of Engineering.

The conference generates countless opportunities for technological and educational interchanges, fostering the implementation of projects related to student and faculty exchanges, joint research and technological training throughout the Americas.

INTERTECH 2000 will mark the 10th anniversary in the evolution of this organization. For more information including registration forms, please visit the conference web site at: <http://intertech2000.uc.edu/>

IEEE NEWS

IEEE-USA Applauds Great Engineering Achievements

WASHINGTON, February 22, 2000 -- "The IEEE-USA is proud that electrification was named as the single greatest engineering achievement of the 20th century," said Merrill W. Buckley, Jr., President of the U.S. career services and public policy arm of the worldwide Institute of Electrical and Electronics Engineers.

"In fact, the IEEE nominated most of the top ten. But what is most important is to recognize that the greatest achievements of engineering lie ahead of us, in ways that will combine and transcend these different disciplines to improve our lives."

"Without electrification, there would be no Internet. We couldn't have the commerce we do now, the communications. We would literally be in the dark. There wouldn't even be hospitals and clinics in most parts of the world," said Buckley. "Our whole way of life could not exist."

Nominated by 29 professional engineering societies, the top 20 list of Great Engineering Achievements was selected and ranked by a distinguished panel of the nation's top engineers, working in anonymity to ensure objectivity. The top 20 list was announced as part of National Engineers Week 2000 at the National Press Club by Neil Armstrong, an engineer and astronaut whose moon landing in 1969 was listed in #12, "Space Exploration".

The top 20 Great Engineering Achievements of the 20th Century are as follows:

List of the Top 20 Great Engineering Achievements of the 20th Century

- | | |
|----------------------------|--------------------------|
| 1. Electrification | 11. Interstate Highways |
| 2. Automobile | 12. Space Exploration |
| 3. Airplane | 13. Internet |
| 4. Safe and abundant water | 14. Imaging Technologies |
| 5. Electronics | 15. Household Appliances |

- | | |
|--|------------------------------------|
| 6. Radio and Television | 16. Health Technologies |
| 7. Agricultural Mechanization | 17. Petroleum and Gas Technologies |
| 8. Computers | 18. Laser and Fiber Optics |
| 9. Telephone | 19. Nuclear Technologies |
| 10. Air Conditioning and Refrigeration | 20. High Performance Materials |

Neil Armstrong Hails "a magical century"
Announces 20 Greatest Engineering Achievements of 20th century

WASHINGTON, February 25, 2000 -- "As an engineer I take substantial pride in the accomplishments of my profession," said Neil Armstrong, keynote speaker for the Great Engineering Achievements project's February 22nd announcement of the 20 most important engineering achievements of the 20th century. "It was a century often punctuated with the terror of war, and darkened with societal struggles to overcome injustice. But the 20th century was also the first century in which technology enabled the images of those struggles to reach across the world and touch people in ways there were previously unimagined."

Quoting John Pierce, a pioneer of satellite communications, Armstrong noted: "Engineering helped create a world in which no injustice could be hidden. Engineers are dedicated to solving problems and creating new useful efficient things, so should not the world admire and respect them? Answer: Only occasionally."

Armstrong, an excellent public speaker, told his audience at the National Press Club: "Many of our fellow citizens are mistrustful of logic and critical of technocrats, and often with reason. Bridges fail and airplanes crash and storage tanks leak and radiation escapes and automobiles are recall. And such failures are widely reported. evidence of their rarity."

Speaking of the National Engineering Association's number one achievement, electricification, Armstrong said: "If anything shines as an example of how engineering has changed the world during the 20th century, it is clearly the power that we use in our homes and businesses."

But Armstrong went on: "My purpose was not to convince you that electrification was the most important technical activity of this past century. All of you have your own opinions.. What I really hoped to do was shamelessly use this occasion to remind you of the breadth, and the depth, and the importance of engineering as a whole to human existence, human progress, and human happiness."

How IEEE-USA Benefits the U.S. Member
By George F. McClure, Editor, IEEE-USA Technology Policy Activities

Some members belong to IEEE primarily to receive publications from the world's largest producer of literature on electrotechnology and, perhaps, to attend technical meetings sponsored by their technical society or its local chapters. Some members belong to take advantage of the insurance program or other aspects of the Financial Advantage program. Some, as has been pointed out in earlier columns, find their chief attraction in the Engineering Management Society or the Professional Communication Society. Perceptive members may realize the opportunities available to them to develop organizational skills through running local sections, tutorials, or working on technical conferences. A relatively small number belong to participate in standards development.

Many members may not realize the ways in which IEEE-USA advances the professional and career interests of the IEEE U.S. member. Following are just some of those ways:

- The annual Professional Development Conference is an information-packed weekend with opportunities to improve "soft" communication and presentation skills, learn career-advancing tips, develop leadership skills, and to get exposure to pending legislation that may affect members. Separate GOLD tracks are aimed specifically at young members.
- Technology policy can have a strong influence on future engineering careers. IEEE-USA has five such committees, respected in government offices, and sought out for their expertise: Aerospace Policy; Communications and Information Policy; Energy Policy; Medical Technology Policy; and Research and Development. Technical societies are encouraged to send a representative to technology policy committee meetings and participate on the development of policy positions for use in advocating to legislators.
- Today, members often find that their career is not one continuous path, but a series of stepping stone positions that may include periods of self-employment. IEEE-USA's popular job listing service has grown into the new IEEE-USA Global Employment Services site <http://www.ieeeusa.org/employment/global>
- With members having to assume more responsibility today for their careers, committees with a focus on career activities assume more importance. IEEE-USA has five such committees: Career Maintenance and Development; Engineering Employment Benefits; Intellectual Property; Licensure and Registration; and Workforce. Among their many important activities, these committees work to aid in career vitality, promote continuing education, protect employee benefits, and to promote engineering registration and acquaint members with the steps involved.
- IEEE-USA surveys engineering salaries and benefits every two years, publishing the Salary and Fringe Benefit Survey, the premier report in this field.
- The IEEE-USA PACE Network, a grass-roots linkage to U.S. regions, areas/councils, sections and interested members, provides timely alerts on legislative issues, so that members can communicate their own views to congressional representatives.
- Congressional Fellows and Executive Fellows, drawn from member volunteers, spend a year aiding congressional offices or executive departmental offices on technology issues under the IEEE-USA sponsorship of IEEE-USA.
- IEEE-USA also sponsors the Washington Internships for Students of Engineering (WISE) program, which supports research on public policy issues; and underwrites a Mass Media Science and Engineering Fellow to report on sci-tech issues at a broadcast or publication news outlet.
- Engineering students benefit from Student Professional Awareness Conferences (S-PACs) by organizing and bringing in qualified speakers on professional topics, with help from IEEE-USA.
- Outreach to the public at large takes two paths: precollege education -- promoting technological literacy among the students; and through media communications -- familiarizing the public with engineers, their role and the benefits we all enjoy as a result of engineering. National Engineers' Week is one such observance.

Higher-grade U.S. members fund IEEE-USA and related activities through a \$27 assessment included on the dues bill: \$23.50, for direct support of IEEE-USA; \$2.50, for IEEE-USA collaboration on public policy and public awareness issues with the American Association of Engineering Societies (AAES); and \$1 for EAB support of the Accreditation Board for Engineering and Technology (ABET).

Clearly, not all U.S. members find all IEEE-USA projects of equal interest, but just as a rising tide lifts all boats, our careers and professional image all benefit from the work IEEE-USA does. For more information on IEEE-USA activities, visit <http://www.ieeeusa.org/> or call +1 202 785 0017.

WHERE YOUR \$27 U.S. IEEE ASSESSMENT GOES

By Ed Podell, Member PACE Divisional Activities Committee

Every IEEE member residing in the United States pays \$27 in addition to basic IEEE dues. The following explains where this money goes:

CAREER/EMPLOYMENT: Includes IEEE-USA's awards and recognition program, employment assistance services such as the new Job Listing Service, consultants networks, entrepreneur networks, surveys (e.g., salary, unemployment, member needs), precollege education and guidance materials, Careers Conference, and other career-related products and services.

PROFESSIONAL ACTIVITIES: Programs and targeted funding to promote professional activities in U.S. regions and sections, student branches, and technical divisions and chapters. Includes the annual Professional Development Conference, Student and Member Professional Awareness Conferences, and Professional Development Grants to U.S. regions and divisions.

GOVERNMENT RELATIONS: Includes IEEE-USA efforts to provide policy assessments and recommendations on technology and engineering careers to decision-makers at federal and state levels. It also reflects our efforts to promote member awareness of policy issues and educate them on effective advocacy. Typical activities include development and dissemination of position statements, congressional briefings, meetings with decision-makers, conferences and workshops, the IEEE-USA Government Fellowship program, and the Washington Internships for Students of Engineering. It also includes IEEE-USA's Legislative Action Center, an on-line tool to help members convey their views to their representatives in Congress.

COMMUNICATIONS: Includes all expenditures related to communication with IEEE's U.S. members and the public-at-large on topical issues, as well as notices of available products and services. Included are IEEE-USA Perspectives news inserts in The Institute, the IEEE-USA Today e-zine, specialized newsletters such as the Legislative Report, press releases, media relations, presentation materials, product brochures and marketing.

TODAY'S ENGINEER: Assessment helps cover expenses associated with publishing this quarterly magazine, which features non-technical tips, strategies, and solutions for fast-track technical professionals.

FACILITIES/OVERHEAD: Maintaining IEEE's Washington office, including support services, information technology, and operations such as volunteer strategic planning and new business development.

GENERAL SERVICES: Board meetings and volunteer travel expenses, as well as payments made by IEEE-USA to IEEE for Institute services (e.g., IT, human resources, meeting planning, mailroom, warehouse, customer service, and elections).

AAES: Supports IEEE's membership in the American Association of Engineering Societies (AAES), a coalition of engineering societies that engage in a variety of government relations, public awareness and international activities, as well as collection of data on the engineering profession.

ABET: IEEE's membership in the Accreditation Board for Engineering and Technology (ABET), which accredits electrical, electronics and computer engineering curriculums.

STAFF (not in pie chart): Salary and benefits for 26 professional and clerical staff members, who support the array of IEEE-USA programs, products and services noted above.

To see a pie chart of this breakdown, please go to <http://www.ieeeusa.org/intro/assessment.html>

PROFESSIONAL CAREER TIME LINE

By Stu Levy & Ed Podell, Co-Chairmen, Philadelphia Section, IEEE

Today is the first day of the rest of your career! Are you drifting along, letting random events or others determine your career path? Are you bored, stagnating? Do you feel ill-prepared to compete in our changing world? YES? Then it's time today to take charge of your career...because how you plan and manage your career will determine whether it is exciting, challenging, and growing -- or dull, routine, and uncertain.

To help you set your goals, the American Institute of Aeronautics and Astronautics' (AIAA) Career Enhancement Committee created this Professional Career Time Line. It supplies a checklist of helpful actions for assuring greater success during every phase of your career.

The Time Line begins two years prior to your college graduation and continues through your retirement. It suggests measures you should take through each phase of your career to keep it vibrant. Please reflect on each phase, set your goals, and frequently re-evaluate yourself to keep your career plan current.

THROUGHOUT YOUR CAREER

- * Assess yourself to define specific goals. Periodically check, reassess, extend, or modify goals.
- * Keep your resume current.
- * Remain active in a professional society that represents your discipline, such as the IEEE
- * Establish and maintain professional contacts.
- * Write, publish, and present your own work at technical meetings.
- * Stay abreast of new developments in your field by subscribing to appropriate periodicals, attending workshops and seminars, and traveling to international and national conferences when feasible.
- * Pursue additional formal education and on-the-job training to remain competitive in an increasingly complex work world.
- * Maintain an appropriate balance among family, career, community, and recreation.
- * Manage money wisely and make intelligent purchases. Periodically seek professional advice about financial planning matters.
- * Sustain good physical and mental fitness.
- * Enhance organizational and interpersonal skills, including communication, interviewing, and networking.
- * Remain adaptable to all changes (technological, social, etc.) implemented in the world of work.

Six stages in your career time line follow. Start wherever you are: student to retiree.

1. COMPLETING COLLEGE

College Junior to Graduation

Career Phase: Student

Typical Age: 20-22

- * Take advantage of co-op opportunities and internships. Work while in school in a career-related field.
- * Participate in an IEEE Student Paper Competition to learn how to prepare and present technical papers.
- * Decide on graduate school, or seek employment after graduation.
- * Prepare your resume.
- * Research potential employers in your chosen field.

- * Develop tentative goals. Make career-path decisions (e.g. industry vs. government vs. R&D vs. design vs. manufacturing vs. teaching etc.).
- * Prepare for the FE (EIT) Exam. Take it during your senior year.
- * Make a realistic and valid first-job choice based upon your career interests.

2. FIRST JOB

Grad. to 3 Yrs in Work Force

Career Phase: New Engineer/Scientist in Training

Typical Age: 22-25

- * Upgrade from IEEE Student Member to Member.
- * Adjust to routines of the work environment.
- * Apply textbook knowledge to real life situations.
- * Learn the company ropes. Become an effective contributor to the team.
- * Learn to perform under pressure. Accomplish tasks effectively and on time.
- * Obtain advanced degree (technical discipline or MBA).
- * Start preparing for the state professional engineering license, if available, in your field of discipline.
- * Develop a mentor or sponsor relationship.
- * Enhance your technical competency. Subscribe to periodicals, technical journals, etc.
- * Present papers on your work (participate in local mini-symposia, national young professional paper sessions, etc.)

3. EARLY CAREER

3 Yrs to 10 Yrs in Work Force

Career Phase: Young Professional

Typical Age: 25-32

- * Focus on your technical specialty, or move toward being a generalist.
- * Continue developing technical skills and credentials.
- * Gain exposure to management and other disciplines.
- * Review your options. Consider changing your career, job, employer, etc.). Make enhancements to your progress.
- * Seek out and accept higher levels of responsibility. Learn to make effective decisions.
- * Keep up-to-date on advancements in your discipline.
- * Obtain state engineering license.
- * Assume a leadership role at the local, regional, or national level of the IEEE.
- * Apply for membership on an IEEE technical committee.
- * Begin preparing for a senior leadership role.
- * Transition from being reactive to proactive in your career decisions.
- * Continue upgrading your leadership role in the IEEE.
- * Consider after-hours graduate programs in your specialty.

4. MID-CAREER

10 Yrs to 22 Yrs in Work Force

Career Phase: Senior Professional (Technical or Supervisory)

Typical Age: 32-52

- * Make career path decision; i.e., remain in a technical area or move into management.
- * Stay technically up-to-date in your chosen specialty.
- * If moving into management, hone your management and human resources skills.

- * Apply for full leadership role on an IEEE technical committee.
- * Continue to take on additional areas of responsibility or assignments.
- * Apply for Senior Member in the IEEE.
- * Become a mentor or sponsor.
- * Achieve national recognition. Assume professional leadership roles.
- * Continue upgrading your leadership role in the IEEE.
- * Begin retirement planning.

5. LATE CAREER

22 Yrs to 40 Yrs in Work Force

Career Phase: Recognized Expert

Typical Age: 52-Retirement

- * Continue professional leadership progression by obtaining assignments (or jobs) with increasing responsibility and authority.
- * Stay technically up-to-date.
- * Continue mentoring and providing guidance to younger professionals.
- * Represent your organization outside the workplace. Achieve national or international recognition.
- * Diversify your skills or develop hobbies that could lead to a second career or added income upon retirement.
- * Teach at a college or university, or start your own consulting practice.
- * Continue retirement planning.

6. RETIREMENT

40+ Yrs in Work Force

Career Phase: Expert Emeritus

Typical Age: 60+

- * Implement your retirement plans.
- * Replace required compulsory activity with desired leisure wants.
- * Consider opportunities for part-time work, consulting, or a second career.
- * Use accumulated experience and wisdom on behalf of others in various senior roles.
- * Make meaningful use of your time.
- * Find new sources of professional and personal satisfaction.
- * Remain active in the IEEE: maintain professional contacts.
- * Tutor precollege students in math, science, or engineering.

This Time Line is a product of the AIAA Career Enhancement Committee. It is the compilation of information and experiences of individual members. The information is intended as general guidelines for technical professionals, and should be tailored to individual situations. The opinions expressed do not necessarily represent those of the AIAA or the IEEE.

CEU COURSE DIRECTORY NOW ON THE IEEE WEB

Piscataway, NJ, March 25, 2000 - Planning your professional development requirements for this year? It's time to freshen up your skills for either short-term or long-term goals. Help is as close as the IEEE website at <http://www.ieee.org/organizations/eab/ceucourselist.htm>

A list of courses offering Continuing Education Units (CEUs), as well as contact information, can now be found on the IEEE website. Listed by date, the courses run the gamut from Advanced Induction Motor Production through XML Technologies.

1999 IEEE President Kenneth R. Laker has stated: "Engineers who desire to remain competitive in the job market must maintain professional vitality throughout the course of their careers. However, no individual can maintain professional vitality without continuing his/her education, especially in the contemporary job market."

DESIGNING SYSTEMS FOR RELIABLE HUMAN PERFORMANCE VIDEO TUTORIAL AT A SPECIAL DISCOUNT

PISCATAWAY, NJ, March 27, 2000 -- Reliability Society President Dr. Ken LaSala and Dr. Samuel Keene, IEEE Fellow, agree that the many system failures and errors due to humans are far too many. Data show that 70% of failures in use are due to humans, with consequences that range from loss of service to product liability claims.

However, there is no need for product designers to accept this situation. The way to avoid this situation is to be more attentive to the human aspects of the product. IEEE makes it easier for you to develop human-friendly products by offering its "Designing Systems for Reliable Human Performance" videotape tutorial at the discounted price of \$299 IEEE Member/\$399 Non-Member. In less than three hours, an IEEE panel of experts will provide you with an understanding of the following aspects of designing products so humans can use them reliably:

- * Consideration of the human in systems analysis and reliability
- * Factors affecting reliable human performance
- * Models of human performance
- * Sources of human performance reliability data
- * Methods for designing systems that include humans
- * Predicting the reliability of human performance
- * Testing methods for systems that include humans

Not only does the tutorial include lectures on the above topics, but it also includes panel discussions about critical topics in designing products for humans.

This videotape, released in 1997, consists of 2 videotapes and presentations notes. The IEEE NTSC product order number is HV6979-QVE and for the PAL product order number is HV6980-QVE. Order from the IEEE Customer Service Department, 445 Hoes Lane, PO Box 1331, Piscataway, NJ 08855-1331, USA. For single sales, call 1-800-678-IEEE (1-732-981-0060 outside the USA and Canada); for company or institutional sales, call 1-800-701-IEEE; or fax 732-981-9667. Or order from our convenient Online Store, access from the IEEE homepage: <http://www.ieee.org/>. Shipping and handling charges apply.

The IEEE Cincinnati Section Executive Committee
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